

## WHAT IS CLAIMED IS:

1           1.    A system for computing overall image quality for  
2   a composite image comprising:

3               a controller receiving image data for the  
4   composite image, the controller:

5                   segmenting the image data into segments  
6   corresponding to different objects within the  
7   composite image,

8                   computing an image quality value for each  
9   segment, and

10                  deriving an overall image quality value from  
11   the image quality values for all segments within the  
12   composite image.

1           2.    The system according to claim 1, wherein the  
2   controller, in segmenting the image data into segments  
3   corresponding to different objects within the composite  
4   image, employs motion vectors for pixels or pixel blocks  
5   within the image to identify the different objects.

1        3. The system according to claim 1, wherein the  
2        controller, in deriving an overall image quality value from  
3        the image quality values for all segments within the  
4        composite image, associates an importance indicator with  
5        each segment rating an effect of the corresponding segment  
6        on image quality for the composite image.

1        4. The system according to claim 3, wherein the  
2        overall image quality value is computed from the sum, for  
3        all segments within the image, of a product of the  
4        importance indicator for a segment and the image quality  
5        value for that segment.

1        5. The system according to claim 3, wherein the  
2        importance indicator for a segment is computed from a  
3        relative size of the segment with respect to the composite  
4        image and an average estimated motion vector value for that  
5        segment.

1        6.    A video system comprising:  
2                an input for receiving image data for a composite  
3        image;  
4                a motion estimator computing motion vectors for  
5        pixels or pixel blocks within the composite image; and  
6                a controller receiving the image data and the  
7        motion vectors for the composite image, the controller:  
8                segmenting the image data into segments  
9                corresponding to different objects within the  
10        composite image,  
11                computing an image quality value for each  
12        segment, and  
13                deriving an overall image quality value from  
14        the image quality values for all segments within the  
15        composite image.

1        7.    The video system according to claim 6, wherein  
2        the controller, in segmenting the image data into segments  
3        corresponding to different objects within the composite  
4        image, employs the motion vectors for pixels or pixel  
5        blocks within the composite image to identify the different  
6        objects.

1        8. The video system according to claim 6, wherein  
2        the controller, in deriving an overall image quality value  
3        from the image quality values for all segments within the  
4        composite image, associates an importance indicator with  
5        each segment rating an effect of the corresponding segment  
6        on image quality for the composite image.

1        9. The video system according to claim 8, wherein  
2        the overall image quality value is computed from the sum,  
3        for all segments within the image, of a product of the  
4        importance indicator for a segment and the image quality  
5        value for that segment.

1        10. The system according to claim 8, wherein the  
2        importance indicator for a segment is computed from a  
3        relative size of the segment with respect to the composite  
4        image and an average estimated motion vector value for that  
5        segment.

1 11. A method of computing overall image quality for a  
2 composite image comprising:

3 segmenting image data for the composite image  
4 into segments corresponding to different objects within the  
5 composite image;

6 computing an image quality value for each  
7 segment; and

8 deriving an overall image quality value from the  
9 image quality values for all segments within the composite  
10 image.

11 12. The method according to claim 11, wherein the  
12 step of segmenting the image data into segments  
13 corresponding to different objects within the composite  
14 image further comprises:

15 employing motion vectors for pixels or pixel  
16 blocks within the image to identify the different objects.

1 13. The method according to claim 11, wherein the  
2 step of deriving an overall image quality value from the  
3 image quality values for all segments within the composite  
4 image further comprises:

5 associating an importance indicator with each  
6 segment rating an effect of the corresponding segment on  
7 image quality for the composite image.

14. The method according to claim 13, further  
comprising:

computing the overall image quality value from  
the sum, for all segments within the image, of a product of  
the importance indicator for a segment and the image  
quality value for that segment.

15. The method according to claim 13, further  
comprising:

computing the importance indicator for a segment  
from a relative size of the segment with respect to the  
composite image and an average estimated motion vector  
value for that segment.

1 16. A signal relating to overall image quality for a  
2 composite image comprising:

3 an overall image quality value for the composite  
4 image derived from image quality values for all segments of  
5 image data for the composite image,

6 wherein each image data segment corresponds to a  
7 different object within the composite image and image  
8 quality values are independently computed for all segments  
9 within the image data.

1 17. The signal according to claim 16, wherein the  
2 segments are based on motion vectors for pixels or pixel  
3 blocks within the image.

1 18. The signal according to claim 16, wherein the  
2 overall image quality value is based on importance  
3 indicators associated with each segment and rating an  
4 effect of the corresponding segment on image quality for  
5 the composite image.

1        19. The signal according to claim 18, wherein the  
2        overall image quality value is computed from the sum, for  
3        all segments within the image, of a product of the  
4        importance indicator for a segment and the image quality  
5        value for that segment.

1        20. The signal according to claim 18, wherein the  
2        importance indicator for a segment is computed from a  
3        relative size of the segment with respect to the composite  
4        image and an average estimated motion vector value for that  
5        segment.